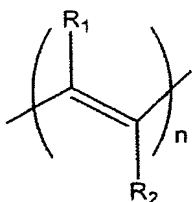
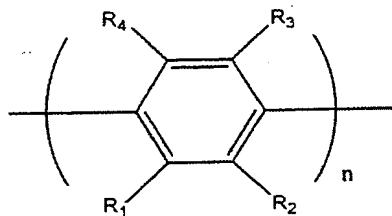


CLAIMS

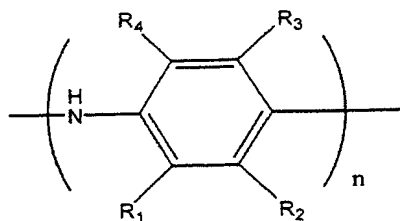
1. Use of at least one electrically conductive or semiconductive polymer as sensitive material in a resistive or gravimetric sensor intended to detect one or more nitro compounds chosen from the group formed by nitroaromatic compounds, nitramines, nitrosamines and nitric esters.
2. Use according to Claim 1, in which the polymer is chosen from polymers meeting the following formulae (I), (II), (III), (IV) and (V):



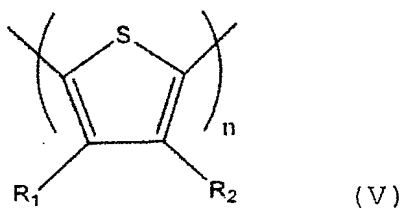
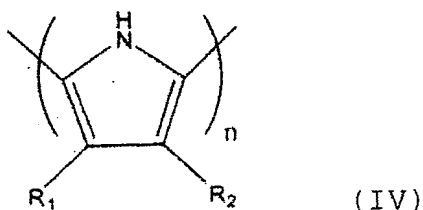
(I)



(II)



(III)



in which n is an integer ranging from 5 to 100 000,
while R_1 , R_2 , R_3 and R_4 represent, independently of one
5 another:

- a hydrogen or halogen atom;
- a methyl group;
- a saturated or unsaturated, linear, branched or
cyclic hydrocarbon chain containing 2 to 100 carbon
10 atoms, and optionally one or more heteroatoms and/or
one or more chemical functions that include at least
one heteroatom, and/or one or more substituted or
unsubstituted, aromatic or heteroaromatic groups;
- a chemical function that includes at least one
15 heteroatom; or
- a substituted or unsubstituted, aromatic or
heteroaromatic group.

3. Use according to Claim 1 or Claim 2, in which the
20 polymer is chosen from polyacetylenes, polyphenylenes,

polyanilines, polypyrrols, polythiophenes, and poly(3-alkylthiophenes).

4. Use according to Claim 3, in which the polymer is
5 a poly(3-alkylthiophene), in particular a poly(3-dodecylthiophene).

5. Use according to any one of the preceding claims,
in which the polymer is subjected to a doping reaction
10 and/or a dedoping reaction.

6. Use according to any one of the preceding claims,
in which the polymer is used in the sensor in the form
of a thin film covering one or both faces of a
15 substrate.

7. Use according to Claim 6, in which the thin film
measures 10 Angströms to 100 microns in thickness.

20 8. Use according to Claim 6 or Claim 7, in which the
thin film is prepared by a technique chosen from
spraying, spin coating, drop coating, dip coating, the
Langmuir-Blodgett technique, electrochemical deposition
and *in situ* polymerization of a precursor monomer of
25 the polymer.

9. Use according to Claim 1, in which the sensor is a
quartz microbalance sensor.

30 10. Use according to Claim 1, in which the sensor is a
multisensor comprising several sensors that are chosen

from resistive and gravimetric sensors, at least one of these sensors comprising an electrically conductive or semiconductive polymer as sensitive material.

5 11. Use according to any one of the preceding claims, in which the nitro compound(s) to be detected are in solid, liquid or gaseous form.

12. Use according to any one of the preceding claims,
10 in which the nitro compound(s) to be detected are chosen from nitrobenzene, dinitrobenzene, trinitrobenzene, nitrotoluene, dinitrotoluene, trinitrotoluene, dinitrofluorobenzene, dinitrotrifluoromethoxybenzene, aminodinitrotoluene,
15 dinitrotrifluoromethylbenzene, chlorodinitrotrifluoromethylbenzene, hexanitrostilbene, trinitrophenylmethylnitramine and trinitrophenol.

13. Use according to any one of the preceding claims
20 for the detection of explosives.